

Application No. 09/715,935

REMARKS

Claims 18-54 and 56-61 are pending. All of the pending claims stand rejected. Applicants respectfully request reconsideration of the rejections based on the following remarks. While Applicants do not acquiesce in the assertions, Applicants do comment on issues relating to features of the dependent claims since these issues are presently moot in view of the deficiencies of the references with respect to the independent claims, as described below.

Rejection Under 35 U.S.C. § 112

The Examiner rejected claims 56-61 under 35 U.S.C. § 112, first paragraph for failure to meet the written description requirement. In particular, the Examiner asserts that the application as filed does not support the limitation that the substrate does not allow gas to flow through the substrate. With all due respect, this rejection seems very surprising for many reasons. First, this feature was first claimed in an amendment dated January 22, 2002. This rejection was not raised at the time. Also, non-porous substrates are described repeatedly throughout the specification. In particular, these embodiments are described in the examples. Referring to MPEP 2163.04 (I)(emphasis added), "the examiner must set forth express findings of fact which support the lack of written description conclusion." The Examiner has not met this requirement since no findings of fact have been cited. The Examiner has fallen far short of establishing a prima facie case of lack of written description.

Applicants respectfully request withdrawal of the rejection of claims 56-61 under 35 U.S.C. § 112, first paragraph for failure to meet the written description requirement.

Rejections Over Akedo et al., Bi et al. and Rao et al.

The Examiner rejected claims 18-29, 33-42, 44, 46-51, 55-57 and 59-61 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,280,802 to Akedo et al. (the Akedo patent), in view of U. S. Patent 5,958,348 to Bi et al. (the Bi patent) and U.S. Patent 5,874,134 to

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Rao et al. (the Rao patent). The Examiner cited the Rao patent for disclosing the motivation for combining the coating apparatus of the Akedo patent and the particle production apparatus of the Bi patent. Applicants maintain that the combined teachings of the references fall far short of teaching or suggesting the claimed invention and certainly for not render the invention prima facie obvious. The Examiner's rejection can only be based on hindsight reasoning based on Applicants' own invention as a template to reconstruct the invention from the prior art. Applicants respectfully request reconsideration of the rejection based on the following comments. For efficiency, Applicants incorporate by reference arguments from the Amendment of February 3, 2004, Amendment of September 3, 2003 and the Appeal Brief of November 19, 2002. Here, Applicants focus on the Examiner's response to arguments.

The Examiner noted that a person of ordinary skill in the art would be charged with the abilities of a design engineer. However, this certainly does not lead to the Examiner's conclusions. The Examiner asserts that the person of ordinary skill in the art could substitute the "coating method" of Bi with the coating method of Akedo. There is no teaching in the reference how to do this or why to do this.

The Examiner notes that all obviousness analyses involve hindsight reasoning, but that is besides the point. By the same reasoning as the Examiner's, all inventions are obvious, based on hindsight, so should we close the Patent Office? But this is also besides the point and not relevant under the law. Referring to MPEP 2143.01, it is well established that "Fact that References Can Be Combined Or Modified Is Not Sufficient To Establish *Prima Facie* Obviousness." Furthermore, referring to MPEP 2143 "The teaching or suggestion to make the claimed combination and the reasonable expectation of success must be both found in the prior art, and not based on applicant's disclosure." Citing In re Vaeck. Hindsight cannot be based on Applicants' own disclosure. That is clearly what the Examiner is doing in the present situation. Thus, the Examiner has fallen far short of establishing prima facie obviousness. The Examiner's

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reliance as the sole source of motivation an assertion relating to making a process continuous ignores the significant complexity of the process and the lack in the references of specific approach of how to combine the teachings of the references. The present claims involve a dramatic redesign and not simply making a process continuous. Actually, the Bi patent teaches a continuous process, so it is even not clear to what the Examiner is referring. The cited references simply do not point to Applicants' claimed invention, and they provide no expectation of success.

Applicants respectfully request withdrawal of the rejection of claims 18-29, 33-42, 44, 46-51, 55-57 and 59-61 under 35 U.S.C. § 103(a) as being unpatentable over the Akedo patent, in view of the Bi patent and the Rao patent.

Rejection Over Lehman, Akedo et al., Bi et al., Rao et al. and Kambe et al.

The Examiner rejected claims 30, 43, 45, 52 and 58 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,097,144 to Lehman (the Lehman patent) in view of the Akedo patent, the Bi patent and the Rao patent, further in view of the Kambe application. The Examiner cited the Lehman patent for its disclosure relating to glass coatings. The deficiencies of the combined disclosures of the Akedo patent, the Bi patent and the Rao patent with respect to Applicants' claimed invention were described in detail above. Applicants maintain that the combined disclosures of the references do not render Applicants' claimed invention prima facie obvious. Applicants respectfully request reconsideration of the rejection based on the following comments. For efficiency, Applicants incorporate by reference arguments from the Amendment of the Amendment of February 3, 2004, September 3, 2003 and the Appeal Brief of November 19, 2002.

The Lehman patent is cited for teaching glass coatings, and the Kambe application is cited for teaching that laser pyrolysis is capable of producing glass materials. The Kambe application teaches a similar apparatus and process as disclosed in the Bi patent, which

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has overlapping inventors with the Bi patent. Thus, the Kambe patent does not add significantly any further broad teaching toward the presently claimed invention beyond the teachings of the Bi patent. The Lehman patent does not teach or suggest particle production or particle deposition. Thus, the Lehman patent clearly does not make up for the deficiencies of the Akedo patent, the Bi patent and the Rao patent with respect to Applicants' claimed invention. Since the Kambe application and the Lehman patent do not make up for the deficiencies of the Akedo patent, the Bi patent and the Rao patent with respect to Applicants' claimed invention, the combined disclosures of the Lehman patent, the Akedo patent, the Bi patent, the Rao patent and the Kambe application does not render Applicants' claimed invention prima facie obvious.

Applicants respectfully request withdrawal of the rejection of claims 30, 43, 45, 52 and 58 under 35 U.S.C. § 103(a) as being unpatentable over the Lehman patent in view of the Akedo patent, the Bi patent and the Rao patent, further in view of the Kambe application.

Rejections Over Akedo et al., Kambe et al., and Rao et al.

The Examiner rejected claims 18-29, 33-52 and 55-61 under 35 U.S.C. §103(a) as being unpatentable over the Akedo patent in view of the Kambe application and the Rao patent. All the relevant independent claims of this rejection were discussed above in the context of the rejection over the Akedo patent, the Bi patent and the Rao patent. The apparatus and methodology in the Kambe application are comparable to the corresponding apparatus and methodology in the Bi patent. Therefore, the arguments above relating to the Akedo patent, the Bi patent and the Rao patent apply equally to the combined disclosures of the Akedo patent, the Kambe application and the Rao patent. Since the combined disclosures of the Akedo patent, the Bi patent and the Rao patent do not render Applicants' claimed invention prima facie obvious, the combined disclosures of the Akedo patent, the Kambe application and the Rao patent do not render Applicants' claimed invention prima facie obvious for the reasons discussed in detail above as well as in documents incorporated by reference with respect to the arguments.

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Applicants respectfully request withdrawal of the rejection of claims 18-29, 33-52 and 55-61 under 35 U.S.C. §103(a) as being unpatentable over the Akedo patent in view of the Kambe application and the Rao patent.

Rejection Over Lehman, Akedo et al., Kambe et al. and Rao et al.

The Examiner rejected claim 30 under 35 U.S.C. §103(a) as being unpatentable over the Lehman patent in view of the Akedo patent, the Kambe application and the Rao patent. Claim 30 depends from claim 18. The Lehman patent does not teach or suggest particle formation or particle deposition. Therefore, the Lehman patent does not make up for the deficiencies of the combined disclosures of the Akedo patent, the Kambe application and the Rao patent with respect to claim 18 and correspondingly claim 30. Since the combined disclosures of the cited references do not render claim 30 *prima facie* obvious, Applicants respectfully request withdrawal of the rejection of claim 30 under 35 U.S.C. §103(a) as being unpatentable over the Lehman patent in view of the Akedo patent, the Kambe application and the Rao patent.

Rejection Over Tran et al., Lehman, Akedo et al., Bi et al., Rao et al. and Kambe et al.

The Examiner rejected claims 31 and 32 under 35 U.S.C. §103(a) as being unpatentable over U.S. patent 6,074,888 to Tran et al. (the Tran patent) in view of the Lehman patent and further in view of the Akedo patent, the Bi patent and the Rao patent, in view of the Kambe application. The Examiner cited the Tran patent for disclosing optical components. Claims 31 and 32 depend from claim 18. Above, it was noted that the combined disclosures of the Akedo patent, the Bi patent and the Rao patent do not render claim 18 *prima facie* obvious. Furthermore, it was noted that the Kambe application and the Lehman patent do not make up for the deficiencies of the Akedo patent, the Bi patent and the Rao patent with respect to teaching the subject matter of claim 18. The Tran patent refers to "known epitaxy techniques" for depositing optical materials. See, for example, column 3, lines 24-27. The Tran patent does not teach deposition approaches that make up for the deficiencies of combining the teachings of the Akedo

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patent, the Bi patent and the Rao patent to obtain Applicants' claimed invention. Thus, the combined disclosures of the Tran patent, the Lehman patent, the Akedo patent, the Bi patent, the Rao patent and the Kambe application do not render Applicants' claimed invention prima facie obvious. Applicants respectfully request withdrawal of the rejection of claims 31 and 32 under 35 U.S.C. §103(a) as being unpatentable over the Tran patent in view of the Lehman patent and further in view of the Akedo patent, the Bi patent and the Rao patent, in view of the Kambe application.

Rejection Over Tran et al., Lehman, Akedo et al., Kambe et al., Rao et al.

The Examiner rejected claims 31 and 32 under 35 U.S.C. §103(a) as being unpatentable over the Tran patent in view of the Lehman patent and further in view of the Akedo patent, the Kambe application and the Rao patent. As noted above, the combined disclosures of the Tran patent, the Lehman patent, the Akedo patent, the Bi patent, the Rao patent and the Kambe application do not render claims 31 and 32 prima facie obvious. For the same reasons, the combined disclosures of the Tran patent, the Lehman patent, the Akedo patent, the Kambe application and the Rao patent do not render claims 31 and 32 prima facie obvious. Applicants respectfully request withdrawal of the rejection of claims 31 and 32 under 35 U.S.C. §103(a) as being unpatentable over the Tran patent in view of the Lehman patent and further in view of the Akedo patent, the Kambe application and the Rao patent.

Rejection Over Börner et al., Bi et al. and Rao et al.

The Examiner rejected claims 18-29, 33-42, 47-51, 53-57 and 59-61 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,032,871 to Börner et al. (the Börner patent) in view of the Bi patent and the Rao patent. Issues relating to the Börner patent in view of the Bi patent have been discussed in detail prior to the issuance of the present Office Action. The Examiner cited the Rao patent for disclosing the motivation for combining the Börner patent and the Bi patent along with the teaching of how to combine the disclosures of the Börner patent

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and the Bi patent. However, the Rao patent confuses rather than clarifies the combination of the disclosures in the Börner patent and the Bi patent. Thus, the combined disclosures do not render Applicants' invention prima facie obvious. Applicants respectfully request reconsideration of the rejection based on the following comments. For efficiency, Applicants incorporate by reference arguments from the Amendment of February 3, 2004, September 3, 2003 and the Appeal Brief of November 19, 2002.

The rejections based on the Börner patent are so clearly based on hindsight, it is difficult to know where to begin. Effectively, the Börner patent is non-analogous art to the particle production technology of the Bi patent. The disclosure of the Börner patent is very schematic since the patent is simply directed to adjusting the charges of sprays to prevent repulsion of different coating materials. The Börner patent relies on skill in the spray gun art to fill in huge amounts of undisclosed subject matter needed to enable the practice of the process in the Börner patent. On the other hand, the Bi patent discloses a complex apparatus for performing sophisticated production of highly uniform nanoparticles. Persons working in the respect fields would not look to the other field for insights in their own art. The technology in the Bi patent required precise alignment of a sophisticated laser with a flowing reactant stream. Complex flow patterns are taken into account. In the spray gun technology, one is simply try to get a coating material from a pot onto a surface. To assert that these technologies can be simply combined requires a great leap of hindsight.

The specific arguments above refuting the Examiner's response to Applicants' arguments apply with equal force here.

The Examiner has fallen far short of establishing prima facie obviousness. Applicants respectfully request withdrawal of the rejection of claims 18-29, 33-42, 47-51, 53-57 and 59-61 under 35 U.S.C. §103(a) as being unpatentable over the Börner patent in view of the Bi patent and the Rao patent.

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Rejection Over Börner et al., Akedo et al. Bi et al. and Rao et al.

The Examiner rejected claims 42-54 under 35 U.S.C. §103(a) as being unpatentable over the Börner patent, in view of the Akedo patent, the Bi patent and the Rao patent. The Examiner cites the Börner patent for teaching two differently charged particle streams. The Examiner asserts that the Börner patent motivates the combination of two "Akedo and Bi" apparatuses to provide each stream. However, as discussed in detail above and in the Appeal Brief of November 19, 2002, the cited references do not teach an "Akedo and Bi" apparatus and the Rao patent teaches nothing to lead to an "Akedo and Bi" apparatus. Since the combined disclosures of the cited references do not lead to an "Akedo and Bi" apparatus, they certainly do not lead to two such apparatuses. Thus, the combined teachings of the Börner patent, the Akedo patent, the Bi patent and the Rao patent do not render Applicants' claimed invention prima facie obvious. Applicants respectfully request withdrawal of the rejection of claims 42-54 under 35 U.S.C. §103(a) as being unpatentable over the Börner patent, in view of the Akedo patent, the Bi patent and the Rao patent.

Rejection Over Rao et al. and Bernecki et al.

The Examiner rejected claims 18-20, 23, 25, 27-29, 39-41, 56 and 58-61 under 35 U.S.C. §103(a) as being unpatentable over the Rao patent in view of U.S. Patent 5,744,777 to Bernecki et al. (the Bernecki patent). The Examiner asserts that the Rao patent teaches Applicants' claimed methods except for teaching a moving substrate. The Examiner cited the Bernecki patent disclosing coating a larger substrate by moving a plasma spray relative to the substrate. However, the cited references do not teach or suggest all of the features of Applicants' claimed inventions. Thus, the cited references do not render Applicants' claimed invention prima facie obvious. Applicants incorporate by reference arguments from the Amendment of February



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3, 2004 and Amendment of September 3, 2003. The arguments above refuting the Examiner's arguments in response to Applicants' arguments apply with equal force here.

In summary, the combined disclosures of the Rao patent and the Bernecki patent do not render Applicants' invention prima facie obvious. Applicants respectfully request withdrawal of the rejection of claims 18-20, 23, 25, 27-29, 39-41, 56 and 58-61 under 35 U.S.C. §103(a) as being unpatentable over the Rao patent in view of the Bernecki patent.

Rejection Over Bi et al. and Carey, Jr.

The Examiner rejected claims 18-22, 26-29, 33-42, 44, 46-51, 53 and 54 under 35 U.S.C. § 103(a) as being unpatentable over the Bi patent in view of U.S. Patent 4,011,067 to Carey, Jr (the Carey patent). The Examiner cites the Carey patent for disclosing the movement of a filter substrate. As an initial matter, the Carey patent is non-analogous art with respect to the Bi patent. Second, the combined disclosures do not provide a reasonable expectation of success. Thus, the combined disclosures of the Bi patent and the Bressan patent do not render Applicants' claimed invention prima facie obvious. Applicants respectfully request reconsideration of the rejection based on the following comments.

"In order to rely on a reference as a basis of rejection of an applicant's invention, the reference must be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." *In re Oetiker*, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). "A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem." *In re Clay*, 23 USPQ2d 1058, 1060-1061 (Fed. Cir. 1992). See also, MPEP 2141.01(a).

The present claims are directed to a reactive process to form particles that are coated onto a substrate. The Bi patent similarly is used in a reactive process to form a

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composition within a flow. However, the Carey patent has nothing to do with a reactive process to make a material. The Carey patent is directed to the collection of airborne particulates in the atmospheric to clean the air. The problems to be faced in the respective situations are not related to each other. The amount of particulates floating in the air is very small. On the other hand, collecting synthesized particles involves larger quantities that are collected in such a way not to interfere with the synthesis approach. For example, the Carey patent describes moving the filter material "two inches per day or less." See column 2, lines 38-42. A person in the field of reactive composition production in a flow would not look to home air cleaning filters for information on coating based on a reactive synthesis process. Thus, the Carey is not reasonable pertinent to the field of endeavor of the claimed invention.

Furthermore, there is no reasonable expectation of success with respect to combining the teachings of these references. The Bi patent teaches the reaction of a flow within a chamber isolated from the ambient atmosphere. On the other hand, the Carey patent teaches the use of filter medium 14 with three layers to filter air. This filter medium is not selected to collect significant quantities of material either to form a coating or to harvest particles. The base porous web and the top porous web are very porous so that particles would be expected to be embedded within these layers. Presumably, the web structure interferes with the flow which can have very detrimental effects on a reactive flow as described in the Bi patent. There is no teaching in the combined disclosures of how to place the filter web within the Bi apparatus to obtain reasonable operation of the combined system. The webs are formed from fibers that may not survive the conditions, e.g., heat, within a reactive system described in the Bi patent. See, column 3, lines 23-25. Since there is no teaching on how to combine the disparate technologies of the Bi patent and the Carey patent, the combined teachings of the references do not provide a reasonable expectation of success.

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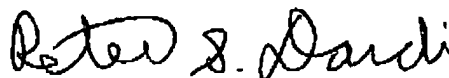
Since the Carey patent is non-analogous art and since the combined teachings do not provide a reasonable expectation of success with respect to Applicants' claimed invention, the combined teachings of the Bi patent and the Carey patent does not render Applicants' claimed invention prima facie obvious. Applicants respectfully request withdrawal of the rejection of claims 18-22, 26-29, 33-42, 44, 46-51, 53 and 54 under 35 U.S.C. § 103(a) as being unpatentable over the Bi patent as applied to and further in view of the Carey patent.

## CONCLUSIONS

In view of the foregoing, it is submitted that this application is in condition for allowance. Favorable consideration and prompt allowance of the application are respectfully requested.

The Examiner is invited to telephone the undersigned if the Examiner believes it would be useful to advance prosecution.

Respectfully submitted,



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